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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,650	11/15/2001	Fumiaki Miyamaru	Q66488	7449

7590 11/14/2003

SUGHRUE MION, PLLC  
2100 Pennsylvania Avenue, NW  
Washington, DC 20037-3213

EXAMINER
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ROJAS, OMAR R

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 11/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/987,650	<b>Applicant(s)</b> MIYAMARU ET AL.	
	<b>Examiner</b> Omar Rojas	<b>Art Unit</b> 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on October 9, 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 10-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 19-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
    a) ☒ All    b) ☐ Some \*    c) ☐ None of:  
        1. ☒ Certified copies of the priority documents have been received.  
        2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
    \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
    a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

1. With regards to the amendment filed on October 9, 2003 (hereinafter "the Amendment"), all the requested changes to the specification and claims have been entered.

### ***Response to Arguments***

2. Applicant's arguments, see pages 12-13, filed October 9, 2003, with respect to the Usui reference and claim 1 have been fully considered and are persuasive. The rejection of claim 1 in view of Usui has been withdrawn.

3. Applicant's arguments filed October 9, 2003 with respect to the Stern reference and claims 1-9 have been fully considered but they are not persuasive. Specifically, the Examiner disagrees with the Applicants' characterization of Stern. The Applicant(s) contend that the light storage plate 12 of Stern *"has a feature of total internal reflection such that light entering from a light source is not emitted from an opposing end face."* See the second full paragraph on page 12 of the Amendment. The Applicants further cite Col. 6, lines 34-40 of Stern. However, the cited passage merely describes the principle of total internal reflection and does not support the assertion by the Applicant(s) that light is not emitted from an opposing end face.

On the contrary, as seen in Fig. 1 of Stern, light 16 from source 14 enters a first end face of light storage plate 12, follows the path shown by the large arrows, and is emitted from an opposing end face of the light storage plate 12. As further shown by Stern, this same light may also be "tapped" out of the waveguide at location 18.

Comparing Fig. 1 of Stern with Fig. 2 of the Applicant(s)' drawings illustrates that the waveguide 12 of Stern operates in substantially the same manner as that of waveguide 14 shown in Fig. 2 of the drawings. Specifically, light enters both waveguides from one end face and is totally internally reflected within the waveguide(s); propagates towards an opposite end face of the waveguide(s); and either exits the opposite end face or is "tapped" out of a different surface perpendicular to the opposing end faces.

Thus, the previous rejections with regards to Stern are maintained and repeated below.

***Claim Rejections - 35 USC § 102***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**5. Claims 1-7, 19-21, and 23-24 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,771,321 to Stern.**

Regarding claims 1-5, Stern discloses an optical modulator comprising: a waveguide 12, a flexible light transmitting member (28) which may comprise an electrically conductive foil material and is brought into contact with the waveguide using static electricity, a light source (14) which emits light diffusing in a direction orthogonal to an arrangement direction of the flexible member 28. See columns 12-13 and Figures 4c-4d. Stern further shows in Figures 9 & 11 a plurality of said optical modulators.

Regarding claims 6-7, Stern shows in Figs. 1-2 light entering the waveguide (12) with and without collimating lenses (20).

Regarding claims 19-21 and 23-34, the examiner incorporates the previous remarks and notes that the surface 34 shown in Fig. 4B may be considered a "boundary surface" of the waveguide 12. The left end of the waveguide 28 also appears substantially aligned with an edge of the flexible light transmitting member (28) as seen in Figs. 4A-4B. Furthermore, as shown in Fig. 11, for example, a plurality of the light adjustment/modulation members (28) may be used in the invention of Stern. Thus, all the limitations of claims 19-21 and 23-34 are substantially met by Stern.

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**7. Claims 8-9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stern.**

Regarding claim 8, the previous remarks concerning claims 1-4 and 6-7 are incorporated herein.

Thus, Stern differs from claim 8 in that Stern does not expressly teach using his optical modulator with an imaging optical system to focus the light emitted from the optical waveguide at a predetermined location.

However, Stern teaches that his device has other applications besides display devices. See column 47, lines 26-38. Furthermore, it is well known to use some type of optical system (such as a lens) to focus light from a waveguide at a predetermined location.

The ordinary skilled artisan would have found it desirable to add focusing optics to Stern for use in a switching device which couples light from the waveguide (12) to an optical fiber, for example.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to modify Stern to obtain the invention specified by claim 8.

Regarding claims 9 and 22, the previous remarks concerning claims 1-4 , 6-7, and 19-21 are incorporated herein.

Thus, Stern differs from claims 9 and 22 in that Stern does not expressly teach using his optical modulator as part of an exposure head for use with a scanning device.

However, Stern teaches that his device has other applications besides display devices, such as optical switches. See column 47, lines 26-38. The use of optical switches in scanning devices is well known in the art.

The ordinary skilled artisan would have wanted to use Stern's device in an exposure head for a scanning device because the device of Stern is said to have a high switching speed which would be desirable for scanning applications in general. See column 47, lines 39-45.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to modify Stern to obtain the invention specified by claims 9 and 22.

**Conclusion**

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Omar Rojas whose telephone number is (703) 305-8528 and whose e-mail address is *omar.rojas@uspto.gov*. The examiner can normally be reached on Monday-Friday (7:00AM-3:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hemang Sanghavi, can be reached on (703) 305-3484. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318 for regular communications. The fax phone number for After Final communications is (703) 872-9319. The examiner's personal work fax number is (703) 746-4751.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Omar Rojas  
Patent Examiner  
Art Unit 2874

or  
November 5, 2003



HEMANG SANCHANI  
PRIMARY EXAMINER